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## Letter to the editor

## Suicidal ideation during the COVID-19 pandemic: The role of insomnia



## A B S T R A C T

There is growing concern over the potential for increased suicide risk in vulnerable populations as the COVID-19 pandemic unfolds. To contextualize this risk during the first weeks of the nationwide lockdown efforts, we had 1,013 U.S. adults complete questionnaires assessing worries over COVID-19, insomnia severity, and suicidal ideation. Anxiety about COVID-19 correlated positively with insomnia severity and suicidal ideation. Analysis revealed that the statistical association between pandemic fears and suicidal thinking was fully accounted for by insomnia severity, suggesting that interventions aimed at improving sleep may be useful in reducing suicide risk during the current pandemic.

## Dear editor,

In a matter of just a few months, the COVID-19 pandemic and the resulting stay-at-home/lockdown orders have had devastating effects on the world economy and the emotional well-being of many across the globe. Not only are people afraid of catching or spreading the virus, there is also persistent anxiety surrounding the pandemic's impact on daily living. In the United States, job losses are approaching levels not seen since the Great Depression, and with the extended period of social isolation and physical distancing, there are concerns of a looming mental health crisis that may have long-lasting consequences for millions of people (Pfefferbaum and North, 2020). Although published data are currently lacking from the U.S., there have been recent suggestions that people are experiencing more sleep-related problems because of pandemic-related anxieties. This is a legitimate cause for concern, as sleep is a vital component of normal emotional functioning, and sleep disruption can exacerbate pre-existing mental health issues, potentially contributing to increased suicidal thoughts and behaviors (Sher, 2020). Owing to the unexpected and nearly unprecedented nature of the recent lockdown on everyday social, interpersonal, and occupational functioning, we hypothesized that greater worries centered around COVID-19 would be associated with elevated suicidal ideation and that this relationship would be driven—at least in part—by the severity of self-reported insomnia.

To assess the associations between insomnia, suicidal ideation, and worries about the novel coronavirus, the Insomnia Severity Index (ISI) (Morin et al., 2011), Patient Health Questionnaire-9 (PHQ-9) (Kroenke et al., 2001), and a modified COVID-19 pandemic worry scale (Wong et al., 2007), were administered to a sample of 1,013 English-speaking U.S. adults (ranging in age from 18–35 years; 567 females). Data were collected from participants in all 50 U.S. states during the third week of the nationwide stay-at-home guidance (i.e., April 9–10, 2020). Respondents completed written informed consent before participation. The research protocol was approved by the Institutional Review Board of the University of Arizona. Insomnia on the ISI was classified as none (0–7), sub-threshold (8–14), moderate (15–21), or severe (22–28). Suicidal ideation was scored from the single item (item 9) of the PHQ-9, which has participants indicate how often they have thoughts that they would be better off dead, ranging from 0 (not at all)

to 3 (nearly every day). The COVID-19 worry scale was modified from its original focus on SARS and included 20 items such as: “I feel that I might be infected by the COVID-19 virus at any moment,” “I worry that I have been infected,” and “I feel COVID-19 will spread quickly.” Items were scored on a 6-point scale, with total scores ranging from 20 to 120. In the present sample, this pandemic worry scale showed high internal consistency (Cronbach's alpha = .90).

Overall, 56% of participants reported at least some evidence of current insomnia, with 30.9% scoring in the sub-threshold range, 19.8% scoring in the moderate range, and 5.2% scoring in the severe insomnia range. These levels are notably higher than historically seen in the general population. Greater worries over COVID-19 were significantly correlated with both increased suicidal ideation ( $r = .11$ ,  $p = .001$ ) and more self-reported insomnia ( $r = .37$ ,  $p < .000001$ ). Insomnia severity was also independently associated with elevated suicidal ideation ( $r = .31$ ,  $p < .000001$ ). As shown in Fig. 1, a standard mediation analysis procedure with bootstrap confidence intervals (5,000 samples) using the Hayes PROCESS program revealed that while COVID-19 fears were associated with greater suicidal ideation (i.e., total effect ( $c$ ),  $p = .005$ ), this association completely disappeared once insomnia was included as an intervening variable within the model (i.e., direct effect ( $c'$ ),  $p = .866$ ). The bootstrap confidence interval for the indirect effect (i.e.,  $ab = .0045$ ; 95% CI: .0033–.0059) did not include zero, suggesting that the intervening variable of insomnia severity fully accounted for the connection between COVID-19 worries and suicidal ideation.

While the longer-term mental health effects of the pandemic are only beginning to emerge, it is clear that there are already significant meaningful associations between higher COVID-19 anxiety and greater suicidal thinking. Interestingly, we find that suicidal ideation is more strongly predicted by insomnia severity than by fears related to the pandemic. In fact, our model suggests that the effects of COVID-19 worries on suicidal thinking are transmitted completely by way of their effects on sleep. In so many words, people are afraid of the virus and how it affects their lives, this worry in turn leads to difficulty sleeping, and—only then—leads to increased suicidal ideation.

Sleep problems have long been recognized as contributors to mental health issues and even greater propensity for suicide (Sher, 2020). Our findings provide empirical support for recent suggestions that the

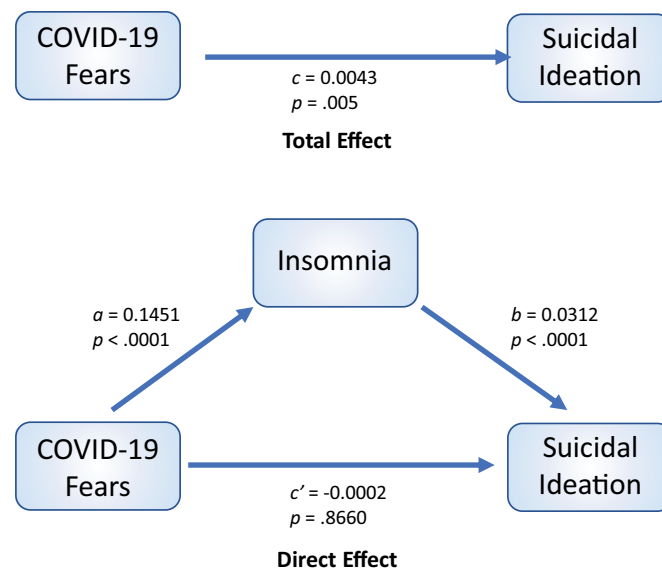


Fig. 1. Insomnia severity fully mediates the association between COVID-19 fears and suicidal ideation.

chronic isolation, stresses, fears, and economic uncertainties of COVID-19 may translate into sleep and mental health problems, potentially culminating in more suicidal outcomes. Although our data are based on self-report, it is likely that the trends observed here could portend elevated rates of completed suicides in the population as the stresses of the pandemic continue.

Importantly, our findings also point to some hope. While pandemic-related fears were correlated with elevated suicidal ideation, this association was completely accounted for by insomnia. Although many of the uncertainties posed by COVID-19 are out of people's control, sleep problems such as insomnia can be effectively treated. Our findings suggest that improving sleep is likely to have a direct impact on reducing suicidal ideation for many individuals.

In the current climate, we recommend that healthcare providers routinely screen for sleep problems such as insomnia and monitor patients closely for suicidal ideation. While pharmacologic options for short-term sleep problems are available, non-pharmacologic approaches such as cognitive-behavioral therapy for insomnia (iCBT) are highly effective and often recommended as first line treatments. Moreover, there are a number of iCBT programs that are available online, which may be appropriate for many individuals participating in social distancing. By making simple efforts to maintain good sleep

hygiene and regular sleep-wake schedules, it may be possible to significantly mitigate the impact of the current pandemic on mental health issues related to suicide.

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William D.S. Killgore\*, Sara A. Cloonan, Emily C. Taylor,  
Fabian Fernandez, Michael A. Grandner, Natalie S. Dailey  
University of Arizona College of Medicine, Department of Psychiatry, United States  
University of Arizona, Department of Psychology, United States  
E-mail address: [killgore@psychiatry.arizona.edu](mailto:killgore@psychiatry.arizona.edu) (W.D.S. Killgore).

\* Corresponding author.